

Amendment to the Claims

1. (canceled)

2. (currently amended) A well logging system as described by claim 4 6 wherein the transmitter and receiver each includes a signal modem complimentary to each other.

3. (original) A well logging system as described by claim 2 wherein the modems utilize data encoding and decoding methods selected from the group consisting of (i) QAM, (ii) CAP, and (iii) DMT.

4. (currently amended) A well logging system as described by claim 4 6 wherein the filaments are distributed about a perimeter of the load carrying sheath in radial layers.

5. (original) A well logging system as described by claim 2 wherein wire size respective to filaments in outer radial layers of the sheath are greater than those of interior layers.

6. (currently amended) A well logging system ~~as described by claim 4~~ comprising:
(a) a downhole well data sensor;
(b) a downhole data transmitter;
(c) a surface data receiver; and

(d) a data transmission cable linking the transmitter and the receiver, the cable having at least one twisted pair of signal conductors, each of the conductors being separately insulated, an insulation sheath surrounding the twisted pair of conductors and a tensile load carrier surrounding the insulation sheath, the load carrier comprising a sheath of tensile load carrying filaments,
wherein the cable has at most seven twisted pairs of insulated conductors within the insulation sheath.

7. (canceled)

8. A well logging data cable ~~as described by claim 7~~ comprising :

- (a) at least one twisted pair of conductors and at most six 6 twisted pairs of conductors disposed around a center conductor, each of the conductors being separately insulated; ~~all conductors being within the insulation sheath~~
(b) an insulation sheath surrounding the twisted pairs of conductors; and
(c) a tensile load sheath surrounding the insulation sheath, the tensile load sheath comprising a plurality of filaments.

9. (currently amended) A data cable as described by claim 7 8 wherein the filaments are distributed about a perimeter of the tensile load sheath in radial layers.

10. (currently amended) A system as described by claim 4 6 wherein the sensor is selected from the group consisting of (i) a pressure sensor, (ii) a temperature sensor and (iii) a flow sensor.

11. (currently amended) A data cable as described by claim 7 8 having an effective capacitance between the twisted pair of conductors of less than 30 pF per foot of cable length.

12. (currently amended) A method of transmitting a signal from within a well borehole to a surface location comprising:

- (a) transmitting the signal with a downhole data transmitter;
- (b) conveying the signal on a data transmission cable linking the transmitter and to a surface receiver, the cable having at least one twisted pair of signal conductors and at most seven twisted pairs of signal conductors, each of the conductors being separately insulated, an insulation sheath surrounding the twisted pair of conductors and a tensile load carrier surrounding the insulation sheath, the load carrier comprising a sheath of tensile load carrying filaments.

13. (original) A method according to claim 12 wherein the transmitting and receiving the signal are accomplished using complimentary signal modems.